I SEMESTER EXAMINATION 2017-2018

Std. : IX **Marks: 40**
Date: 11-10-17 **Sub: MATHS I [ALGEBRA]** **Time: 2 hrs.**

Q.1] A] Write the correct alternative for each of the following questions **(5)**

1. What is the degree of the polynomial 7?
   a. ½ b. 5 c. 2 d. 0

2. M N = {1,2,3,4,5,6} and M = {1.2.4}, then which of the following represent set N?
   a. {1,2,3} b. {3,4,5,6} c. {2,5,6} d. {4,5,6}

3. If 6 : 5 = y : 20; then what will be the value of y?
   a. 15 b. 24 c. 18 d. 22.5

4. Every point on the number line represents _____ numbers.
   a. Natural b. Irrational c. Rational d. Real

5. What is the degree of the polynomial $2x^2 + 5x^3 + 7$?
   a. 3 b. 2 c. 5 d. 6

B] Solve the following (Any 5) **(5)**

1. Write the following polynomial in standard form: $p + 2p^3 + 10p^2 + 5p^4 - 8$.
   Ans: _____ + $2p^3$ + _____ + p – 8
2. Write any two rational numbers between 2 and 3.
3. Convert the following ratios into percentages: 7/10.
   (7/10) x 100 = _____%
4. Write the following set in the roster form: A = set of negative integers.
5. Find the reduced form of the ratio of the first number to second number: 52 ; 78.
6. Write the polynomial ($x^4 - 3x^2 - 4$) in its coefficient form
   Index form of the polynomial = $x^4 + 0x^3 - 3x^2 + 0x^2 - 4$
   Coefficient form of the polynomial = _____

Q.2 Solve the following (Any 4) **(8)**

1. Add the given polynomials: $x^3 - 2x^2 - 9$; $5x^3 + 2x + 9$

   $(x^3 - 2x^2 - 9) + (5x^3 + 2x + 9) =$ _____

2. A = {1,3,2,7}, then write any four subsets of A.
3. Using the property of a/b = ak/bk, fill in the blanks by substituting proper numbers in the following:

   – = — = —

4. Compare the following pair of surds: 7¥ ¥

   7¥ ¥

   ¥ [☐

   ☐ ; 75

   7 2 ☐ 5 3

5. Factorise: $2n^2 + 5n - 3$

Q.3 Solve the following (Any 3) **(9)**

1. Divide $(x^4 + 2x^3 + 3x^2 + 4x + 5) \div (x + 2)$ by synthetic method. Write the quotient and the remainder.

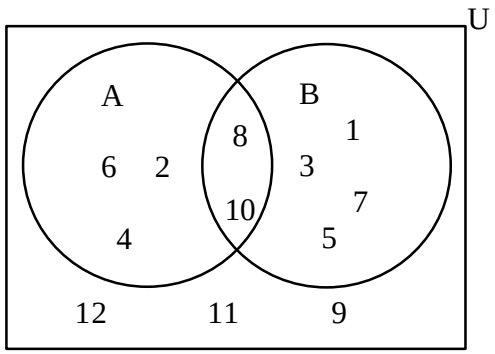
   Index form of dividend = _____

   Coefficient form of dividend = _____

   Divisor = x + 2 = 0

   x = ____

2. Observe the Venn diagram and write the following sets using listing method: U, A, B, A B, A B, A



3. The ratio of two numbers is 31 : 23 and their sum is 216. Find these numbers.
4. Represent the number 10 on a number line.

Q.4 Solve the following (Any 2) (8)

1. Divide the first polynomial by second polynomial and write the answer in the form:
   Dividend = Divisor x Quotient + Remainder
   $(x^3 – 64) \div (x – 4)$

2. If $p(x) = 2 + 5x$, then find $p(2) + p(–2) – p(1)$
   $p(x) = 2 + 5x$
   $p(2) = 2 + 5(2)$
   = _____
   = _____

   $p(–2) = 2 + 5(–2)$
   = _____
   = _____

   $p(1) = 2 + 5(1)$
   = _____
   = _____
   $p(2) + p(–2) – p(1)$ = _____

3. In a hostel there are 125 students, out of which 80 drink tea, 60 drink coffee and 20 drink tea and coffee both. Find the number of students who do not drink tea or coffee.

Q.5 Solve the following (Any 1) (5)

1. There is a rectangular farm with length $(2a^2 + 3b^2)$ metre and breadth $(a^2 + b^2)$ metre. The farmer used a square plot of the farm to build a house. The side of the plot was $(a^2 – b^2)$ metre. What is the area of the remaining part of the farm?
2. Factorize: $(y + 2) (y – 3) (y + 8) (y + 3) + 56$.